Correspondence to S. P. B. Percival, FRCS. Department of Ophthalmology, Scarborough Hospital, Scarborough, North Yorkshire.
Results

Timolol 0.5% has been shown to reduce the aqueous flow by 33% and tab. acetazolamide 250 mg by 27%. Of the 109 eyes in the present study receiving Healonid and routine postoperative acetazolamide the mean first-day intraocular pressure was 19.7 mmHg, and only 7% of readings were over 30 mmHg. Of the 63 eyes receiving Healonid and routine timolol the corresponding figures were 20.0 and 11% respectively.

These findings confirm the value of acetazolamide and timolol in reducing aqueous secretion, and Table 1 also shows that by the third postoperative day there was little difference in mean intraocular pressure between the different groups, the marginally higher mean pressure found in controls being explained by the fact that these eyes were less likely to have been offered treatment.

No significant difference was found between intraocular and extracapsular eyes (Table 2). There were no cases of pupil block glaucoma among the groups receiving Healonid.

Discussion

UVEITIS

On the first day slit-lamp examination often gives the appearance of a plastic anterior uveitis in an eye containing Healonid. However, this is due to the presence of Healonid holding cells in suspension. Flecks of blood may also be seen held in suspension due to rouleaux caused by altered electrostatic charge on red blood cells. These appearances vanish by the third day and do not require specific treatment. 7% of

Table 1 Postoperative ocular hypertension in 334 eyes

<table>
<thead>
<tr>
<th>Eyes</th>
<th>First day</th>
<th>Mean IOP (mmHg)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>IOP&gt;30 mmHg</td>
<td>5 mm&gt;preop.</td>
</tr>
<tr>
<td>108 Controls</td>
<td></td>
<td></td>
</tr>
<tr>
<td>54 Healonid</td>
<td></td>
<td></td>
</tr>
<tr>
<td>109 Healonid+acetazolamide</td>
<td></td>
<td></td>
</tr>
<tr>
<td>63 Healonid+timolol</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

IOP=intraocular pressure.
*p<0.01; **p<0.001.

Postoperative ocular hypertension

Healonid leaves the anterior chamber by way of the aqueous outflow channels, but the viscosity has to be reduced by dilution with aqueous before this hydrophilic substance may run through the trabecular meshwork. Intraocular pressure may rise therefore if excessive amounts of Healonid remain in the anterior chamber at the end of surgery.

One hundred and eight eyes did not receive Healonid or any routine ocular hypotensive. These acted as controls (Table 1). Of 54 eyes initially receiving Healonid (all were extracapsular extractions) 57% showed a rise of intraocular pressure 5 mm or more than the preoperative level. The first day applanation was over 30 mmHg in 31% and the mean intraocular pressure was 25.6 mmHg compared with 18.9 mmHg in the control group.

Results

In a double-blind trial on 21 normal subjects guttae timolol 0.5% has been shown to reduce the aqueous

Table 2 Incidence of raised intraocular pressure on first postoperative day (the initial 54 extracapsular eyes receiving Healonid are excluded)

<table>
<thead>
<tr>
<th>Eyes</th>
<th>IOP&gt;30 mmHg</th>
<th>5 mm&gt;preop.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Controls EC</td>
<td>3 (11%)</td>
<td>5 (18%)</td>
</tr>
<tr>
<td>80 EC</td>
<td>8 (10%)</td>
<td>19 (24%)</td>
</tr>
<tr>
<td>Healonid EC</td>
<td>6 (10%)</td>
<td>26 (42%)</td>
</tr>
<tr>
<td>110 EC</td>
<td>9 (8%)</td>
<td>31 (28%)</td>
</tr>
</tbody>
</table>

IOP=intraocular pressure. IC=intracapsular. EC=extracapsular.
Healonid eyes and 8% of controls were recorded as having a more severe uveitis than is expected during the first postoperative week, but there were no cases of hypopyon or of developing keratic precipitates. There were no cases of sputtering hyphaema or of the uveitis-glaucoma-hyphaema (UGH) syndrome.

WOUND HEALING
There were no eyes in which delayed healing or improper apposition could be attributed to Healonid. A disadvantage of Healonid is that at the end of surgery it is more difficult to assess whether a wound is water-tight than when the anterior chamber is reconstituted purely with salt solution. This is of particular importance during keratoplasty, and alternative methods of reconstituting the anterior chamber should be preferred during the final phases of surgery.

VISUAL ACUITY
After 17 patients had been excluded because of pre-existing visual defects unrelated to cataract all eyes were seeing 6/12 or better at the final point of follow-up except for the following: (i) macular oedema: 5 intracapsular eyes and one extracapsular eye were seeing 6/18 or less, 4 had received Healonid and two had not; (ii) retinal detachment: one intracapsular eye; (iii) corneal decompensation: one extracapsular eye that had not received Healonid.

CONCLUSION
The use of sodium hyaluronate is perhaps the single most important advance to be seen in anterior segment surgery in 10 years. It is safe and free from complications except an ocular hypertensive effect, which generally lasts for less than 3 days. This may be obviated by the routine use of postoperative timolol maleate or acetazolamide or both in combination.

References
Complications from use of sodium hyaluronate (Healonid) in anterior segment surgery.
S. P. Percival

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